

**REMARKS**

None of the claims have been amended or cancelled. Claims 1, 2, 4, 5, 7 and 11-13 are pending. Claim 13 has been withdrawn from consideration. No new matter is presented in this Response. Claims 1, 11, 12 and 13 are the independent claims.

**REJECTIONS UNDER 35 U.S.C. §102:**

Claims 1-2, 5, 7 and 11-12 are rejected under 35 U.S.C. §102(b) as being anticipated by Mitnaga et al. (U.S. Patent No. 5,923,997).

Regarding the rejection of independent claim 1, it is noted that claim 1 recites a display device comprising, amongst other novel features, a display region; a driving region; primary crystal grain boundaries in the display region and in the driving region; secondary crystal grain boundaries in the display region and in the driving region; wherein the primary crystal grain boundaries are inclined to a first direction of current flowing from source to drain of each of the first plurality of thin film transistors in the display region at an angle of  $-30^{\circ}$  to  $30^{\circ}$  and the secondary crystal grain boundaries are inclined to a second direction of current flowing from source to drain of each of the first plurality of thin film transistors in the display region, and wherein the primary crystal grain boundaries are inclined to the second direction of current flowing from source to drain of each of the second plurality of thin film transistors in the driving region at an angle of  $30^{\circ}$  to  $150^{\circ}$  and the secondary crystal grain boundaries are inclined to the first direction of the current flowing from source to drain of each of the second plurality of thin film transistors in the driving region.

The Office Action relies on Mitnaga for a teaching of the features recited in independent claim 1, and states that Mitnaga teaches primary crystal grain boundaries inclined to a first direction of current flowing from source to drain of each of the first plurality of thin film transistors in the display region at an angle of  $-30^{\circ}$  to  $30^{\circ}$  and secondary crystal grain boundaries inclined to a second direction of current flowing from source to drain of each of the first plurality of thin film transistors in the display region.

However, Applicants note that although Mitnaga discloses a relationship between a current flow direction from source to drain and grain boundaries, Mitnaga discloses this

relationship in a peripheral circuit portion of a TFT, and not in the display region of a display device, as recited in independent claim 1. As noted in column 7, lines 64-67 and column 8, lines 6-8, Mitanaga discloses a TFT forming a driver for the peripheral circuit in which the direction of the crystal growth coincides with the path direction of the electric current in the channel.

Accordingly, the location where the current moves in a direction parallel with the crystal grain boundaries, in order to obtain a high mobility, is in the peripheral region, and not in the display region, as recited in independent claim 1.

Therefore, since Mitanaga fails to disclose the relationship between a direction of current flow and a grain boundary in the display portion, and discloses only a relationship between a direction of current flow and a grain boundary in the peripheral circuit portion, Mitanaga fails to teach or suggest the novel features recited in independent claim 1.

Furthermore, Applicants respectfully note that Mitanaga simply teaches one type of crystal grain boundary. As illustrated in Figs. 5B and 5C, Mitanaga discloses crystals extending laterally 215 in one direction and grain boundaries 216 located between the crystals (column 14, lines 60-67 and column 15, lines 1-23). In other words, grain boundaries 216 are simply one type of crystal grain boundary. Therefore, Mitanaga fails to teach or suggest a second type of grain boundary located in the channel region or in any of the other regions. The reason for forming only one type of grain is that Mitanaga uses a method different than then the one of the present invention (column 2, lines 34-38).

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. § 102(b) should be withdrawn because Mitanaga fails to teach or suggest each feature of independent claim 1.

Regarding the rejection of independent claims 11 and 12, it is noted that these claims recite some substantially similar features as claim 1. Thus, the rejections of these claims are also traversed for substantially the same reasons set forth above.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 2, 5 and 7 under 35 U.S.C. §102(b) should be withdrawn at least because of their dependency from claim 1 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 2, 5 and 7 also distinguish over the prior art.

**REJECTIONS UNDER 35 U.S.C. §103:**

Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mitnaga et al. (U.S. Patent No. 5,923,997).

Initially it is noted that claim 4 depends from claim 1 and as noted above, Mitnaga fails to teach or suggest the novel features of independent claim 1.

Accordingly, Applicants respectfully assert that the rejection of dependent claim 4 under 35 U.S.C. §103(a) should be withdrawn at least because of its dependency from claim 1, and because the dependent claim includes additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claim 4 also distinguishes over the prior art.

**CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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